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## PHEOCHROMOCYTOMA OF THE URINARY BLADDER: A CASE REPORT

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We present a 66-year old female patient with pheochromocytoma of the urinary bladder. We performed transabdominal needle biopsy of the tumor without suspicion of pheochromocytoma because of her well-controlled blood pressure and no characteristic symptoms following administration of antihypertensive medication. Hypertensive crisis (260/130 mmHg) occurred just after the needle insertion. The diagnosis was pheochromocytoma. The norepinephrine level in the serum and her blood pressure normalized without antihypertensive medication after partial cystectomy. Pheochromocytoma should be suspected in cases of intramural bladder tumors, especially in a normotensive patients receiving antihypertensive medication.

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**Key words:** Pheochromocytoma, Urinary bladder

### INTRODUCTION

Bladder pheochromocytoma is a rare tumor that arises from the chromaffin tissues of the sympathetic nervous system of the bladder wall. It accounts for less than 0.06% of all bladder neoplasms<sup>1)</sup> and less than 1% of all pheochromocytoma<sup>2)</sup>. We present a case of pheochromocytoma of the urinary bladder.

### CASE REPORTS

A 66-year-old woman with abdominal pain was referred to our hospital. She was diagnosed as having a gastric ulcer, and a urinary bladder tumor was incidentally revealed by abdominal ultrasonography. She had been receiving treatment for hypertension with alpha- and beta-blockers for 10 years since a craniotomy for cerebral bleeding. Her blood pressure was 130/70 mmHg, and physical examination was unremarkable except for mild right hemiparaplegia. Laboratory data, including complete blood count, blood urea nitrogen, creatinine, electrolytes and urinalysis, were normal except for slight anemia (hemoglobin 11.7 g/dl). Cystoscopy was also normal. Computed tomography (CT) revealed a contrast-enhanced mass in the dome of the bladder (Fig. 1). The magnetic resonance image (MRI) showed a demarcated mass with a high signal intensity on both T1 and T2-weighted images.

A suprapubic echo-guided needle biopsy was performed for differential diagnosis. The patient's blood pressure abruptly increased to 260/130 mmHg just after needle insertion. The pathological diag-

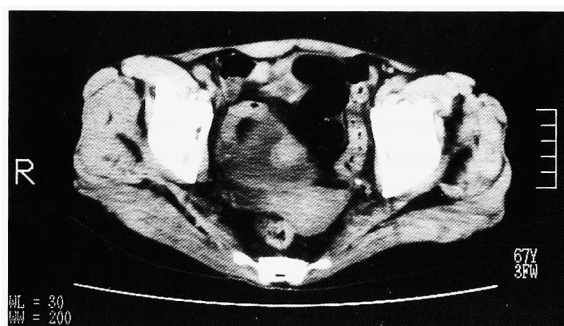


Fig. 1. CT reveals a contrast-enhanced mass in the dome of the bladder (arrow).

nosis was pheochromocytoma. The norepinephrine level in the serum was elevated (1,310 pg/ml, normal range: 90–420 pg/ml) and epinephrine and dopamine levels were normal. <sup>131</sup>I-meta-iodobenzylguanidine scintigraphy showed an up-take increase of isotope at the urinary bladder. Preoperatively, she received alpha- and beta-blockers with the same dosages as before biopsy, and her blood pressure was well controlled.

Partial cystectomy including the mass was performed under general anesthesia and the blood pressure was controlled with intravenous phentolamine. After complete tumor resection, her blood pressure was maintained by intravascular volume expansion and intravenous drip of dopamine and norepinephrine. The surgical margin was free from the tumor. The patient became normotensive without antihypertensive medication after surgery. The norepinephrine level in the serum also normalized.

### DISCUSSION

Recent imaging modalities have made it easy to identify bladder pheochromocytoma. MRI has advantages over CT and sonography because due to its multiplanar imaging capability and excellent tissue contrast. The MRI of bladder pheochromocytomas shows an intramural tumor with intermediate signal intensity on T1-weighted images and high signal intensity on T2-weighted images but this is nonspecific and overlaps the findings of other intramural bladder tumor<sup>3)</sup>.

In our case, hypertension was well controlled by medication, and there were no characteristic symptoms such as headache, palpitation, blurred vision and sweating, which are associated with miction in pheochromocytoma of the urinary bladder<sup>5)</sup>. Thus, pheochromocytoma was not suspected until a serious hypertensive crisis occurred during the biopsy procedure. Although she had received alpha and beta-blockades, needle insertion to the tumor promoted excess catecholamine excretion and elevated the blood pressure. Fortunately, no complications occurred. Pheochromocytoma should be suspected in cases of intramural bladder tumors, especially in a patient receiving antihypertensive medication, and precautions should be taken to avoid lethal complications.

Pheochromocytoma of the urinary bladder must be surgically excised, usually by partial cystectomy<sup>4,5)</sup>. Das et al.<sup>4)</sup> reviewed 100 cases of pheochromocytoma of the urinary bladder. While most cases were treated with partial cystectomy, 7 cases were treated with radical cystectomy due to confirmed metastatic lymphadenopathy, and 7 cases were treated with transurethral resection (TUR). We do not recommend TUR for treatment of pheochromocytoma of the urinary bladder, because direct manipulation of the tumor promotes catecholamine excretion,

elevates the blood pressure and it is difficult to eradicate the entire lesion by TUR alone, since the majority of these neoplasms are intramural<sup>4,5)</sup>.

Preoperatively, patients should be appropriately prepared with alpha blockade for 7 to 14 days to normalize the blood pressure and intra vascular volume expansion<sup>4,5)</sup>. Beta blockade is reserved for patients who exhibit cardiac arrhythmia or tachycardia<sup>5)</sup>. Intraoperatively, the blood pressure can be controlled by phentolamine, as in our case<sup>5)</sup>. After tumor resection, hypotension is common and treated with intravascular volume expansion and pressors<sup>5)</sup>.

Long-term follow-up is essential since it is not histologically feasible to differentiate benign from malignant pheochromocytoma<sup>4,5)</sup>. Our case remains normotensive without antihypertensive medication, and there was no evidence of recurrence on whole body CT 1 year after surgery.

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## 和文抄録

## 膀胱褐色細胞腫の1例

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66歳，女性，膀胱褐色細胞腫の1例を呈示する．降圧療法により血圧は正常に保たれ特徴的な症候もなかったので褐色細胞腫を疑うことなくエコーガイド下に経腹的針生検を行った．穿刺直後に顕著な血圧上昇（260/130 mmHg）を生じた．病理診断は褐色細胞腫

であった．膀胱部分切除後，降圧療法なしで血圧は正常となり血清ノルエピネフリンも正常化した．壁内膀胱腫瘍患者において，特に降圧療法で正常血圧の場合，褐色細胞腫を疑うべきである．

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